BOOK REVIEW

Platnick, N. I. 1989. Advances in Spider Taxonomy 1981-1987: A Supplement to Brignoli's A Catalog of the Araneae Described Between 1940 and 1981 (edited by P. Merrett). Manchester University Press. Distributed exclusively in the United States and Canada by St. Martin's Press, $190.00.

This magnificent 673-page volume continues the work of cataloging and summarizing the many taxonomic changes that have occurred within the Order Araneae since the classic works of Roewer, Bonnet, and Brignoli. In his introduction Platnick thanks the makers of his word-processing software and computers, and indeed the ease such tools confer on this sort of work can scarcely be overstated. Brignoli wrote his catalog on paper slips, Platnick wrote his on disk. We can look ahead to that day (probably not far off) when such works will be available in database form as well. Given the rather stiff price for this volume and the flexible access that computers allow, that day can not arrive too soon.

The volume is remarkably error free. The author and his able arachnologist editor Peter Merrett deserve high praise for this. I found no errors within the body of the catalog. In fact it corrected a long standing misunderstanding on my part (it's *Daramulunia* Lehtinen, not *Daramuliana*).

The bibliography is, of course, comprehensive (roughly 1200 references); as in the catalogs of Roewer and Brignoli, only taxonomic literature is included. The style follows that of Roewer and Brignoli in that entries are grouped first by year rather than alphabetically by author. I personally find this style less usable, and hope that future volumes will adopt the former style. *Advances in Spider Taxonomy* resumes Roewer's formula for taxonomic entries, which delivers succinct information on illustrations, descriptions, transfers, and synonymies. It is fast and easy to use.

Knowing what to include and what to omit must be a problem for cataloguers. Platnick explains the convoluted history of araneological cataloging in his preface. Cataloging took a severe turn for the worse when Brignoli omitted synonymies and transfers of pre-Roewer names (those published before 1940 or 1954) from his compilation. Given that a huge number of spider names are pre-Roewer, this omission condemned the user to just the sort of memorization of the primary taxonomic literature that one expects catalogs to obviate. I am delighted to report that *Advances in Spider Taxonomy* is back on track, and includes all such synonymies and transfers for the time period covered. It is thus fully comphehensive and complete. The 1940-1981 hiatus due to Brignoli's omission remains, but future volumes will correct this lack.

Platnick does draw his own line, however. He omits fossils, subfamilial and subgeneric groupings, and mentions of taxa in purely faunistic works unless accompanied by useful illustrations. Neither does he list instances where an author provided only general habitus illustrations. These are reasonable pragmatic decisions that will not impede most taxonomic work.

That *Advances in Spider Taxonomy* is indispensable to researchers and especially to taxonomists scarely needs saying, but it also provides information of a more general nature. The Order Araneae as a whole contains roughly 34,000 described species, grouped in 2944 genera in 105 families (N. I. Platnick, pers. comm.). As such, it falls well within the ten most diverse ordinal groups on earth (whatever an "order" is. . .). At the generic level Salticidae, with 490 genera, reigns supreme. Linyphiidae is second with 386 genera. Even if one excludes monotypic salticid and linyphiid genera, their competitors still are probably less diverse; Thomisidae and Gnaphosidae have 160 and 141 genera, respectively. Fourteen families remain monotypic at the generic level.

Advances in Spider Taxonomy records about 7700 taxonomic entries since 1981, including 230 newly described genera, and roughly 2581 newly described species. (Due to possible counting errors, numbers of species reported hereafter are rounded to the nearest ten.) Taxonomic practice seems to be improving: 1420 species were described from both sexes; 720 from females only; 440 from males only; and just one new species was based on juvenile specimens only (in 1982). Platnick made a special effort to cover the Soviet and Chinese literature, which heretofore has received only spotty coverage in the West. For example, 150 of the new species descriptions pertain to China and 180 to regions within the USSR. As one might anticipate, the region most productive of new species is Latin America and adjacent archipelagoes (690), followed by Africa and her islands (320), Australia (250), North America (210), Japan and Korea (130), and India and Sri Lanka (100). New species still turn up with respectable frequency in Europe and adjacent Mediterranean islands (120), although discoveries in England (that best known region) seem to be petering out at last. About a third of all genera (1089 in 83 families) are found in the Neotropics.

This volume also conveys much about our knowledge of the phylogeny and diversification of spider lineages. Early to mid-20th century phylogenetic work on spiders can be fairly summarized as cautious tinkering with Eugène Simon's impressionistic classification. However, in the late 1960s and early 1970s P. T. Lehtinen and R. R. Forster showed that the old Cribellatae (which Simon accepted) was nothing less than fictitious. This insight burst like a bomb among araneologists, effectively shattered the complacency based on the traditional classification, and rendered many familial and suprafamilial taxa suspect. Fast on its heels came the more general revolution in taxonomic theory known as cladistics, which not only corroborated the falsehood of the Cribellatae, but undermined confidence in the existing classification (i.e., alleged taxa) even more. By the late 1970s it is fair to say that many workers had realized that two centuries of higher classificatory results were mostly wrong, that no supra-generic grouping in spiders was beyond question, and that most of it would have to be redone or at least checked. In short, the classification of Araneae has lacked any reliable foundation for the last 20 years, despite the hollow superstructure that persisted. This implosion of confidence affects more than mere bookkeeping. Broad generalizations about taxon-based evolutionary or ecological process and pattern are impossible if one's notion of history (i.e., taxa) is awry. As is evident from *Advances in Spider Taxonomy*, arachnologists will now have to get to know major new families such as the Idiopidae (18 genera), Hexathelidae (11 genera), Cyrtaucheniidae (18 genera), Nemesiidae (37 genera), and Orsolobidae (27 genera), as well as major changes in recently recognized families such as

Cyatholipidae (7 genera) and Tetrablemmidae (30 genera). The infraordinal classification of Mygalomorphae is completely new. Old concepts of families such as Agelenidae, Amaurobiidae, Clubionidae, Dictynidae, and Hahniidae have been altered beyond recognition. *Advances in Spider Taxonomy* and some ancillary literature permits the estimate that only about 180 araneomorph genera in 22 or 23 families still contain cribellate species. Because cribellate taxa are likely to be morphological relicts, they become especially important to include in phylogenetic analyses. The comfortable but narrow view of north temperate arachnologists continues to break apart.

Advances in Spider Taxonomy reflects this revolution. Platnick makes it quite clear that the order followed in the catalog does not reflect his personal ideas about spider phylogeny, and he remains uncomfortable with some of the more anomalous groupings that still persist nomenclatorially (will someone PLEASE sink this family?). He wisely dropped Brignoli's effort at subfamily groupings, who in turn wisely dropped Roewer's efforts at supra-familial groupings. Thus all genera within families, and species within genera, are listed alphabetically. The order of families does still follow that of Brignoli, which is to say a one-dimensional representation of presumed phylogenetic order. All in all, the arrangement of *Advances in Spider Taxonomy* is certainly an improvement and more realistic, since users of Roewer's catalog tend to wear out the index faster than anything else.

Despite this retrograde trend of the past few decades, progress has been made in discerning the phylogeny of Araneae (largely due to the taxonomic work of Platnick and collaborators). Mesothelae and Opisthothelae are monophyletic, as are Mygalomorphae and Araneomorphae. Within Araneomorphae two large nested taxa seem valid: Neocribellatae and Araneoclada. From *Advances in Spider Taxonomy* we find that Liphistiomorphae has just two genera, but its sister group (by definition of equal age) has 2942. Mygalomorphae has 259, but its sister group Araneomorphae has 2683. Within Araneomorphae the pattern repeats itself: Paleocribellatae includes only two genera, whereas its sister taxon Neocribellatae has 2681 genera. Finally, Araneoclada has 2671 genera. Obviously diversification rates among spider lineages of equal age are highly dissimilar (assuming that variation in generic size is unbiased). Within Araneoclada, however, few large suprafamilial groupings are supported by competent phylogenetic arguments. One can mention only Dysderoidea (99 genera, 4 families), Palpimanoidea (51 genera, 10 families), Gnaphosoidea (151 genera, 6 families), and Orbiculariae (724 genera, 13 families).

On a more frivolous level, I cannot help but note how this catalog exposes the nomenclatorial foibles of taxonomists. Rendering one's phylogenetic speculations immortal by combining the root of a pre-existing name with a small set of particles (Allo-, Holo-, Meta-, Neo-, Para-, Proto-, Pseudo-, -oides, -iella, etc.) seems irresistible. Like sustained stutters these etymological traditions, once started in a family, are hard to stop. Thus Theraphosidae has always had a bad infection of **.pelma* names, Lycosidae had its **.osa* names, and Ctenidae was beset with a cacophonic diversity of **.ctenus* (with apologies to DOS file-naming conventions). The work this catalog chronicles has not been kind to this sort of ersatz cladistic insinuation. Although *Segestria* cannot avoid being a segestriid, its erstwhile nestmate *Segestrioides* is now a diguetid. *Atypoides* no longer nestles close to *Atypus*. *Neocteniza*, alas, has fled the Ctenizidae for the Idiopidae.

Dysderina and *Dysderoides* turn out to be oonopids. At the other end of the order, the **.poena* tradition bravely begun in Theridiidae has been largely a mysmenid phenomenon lately; even the patriarch *Dipoena* barely missed expulsion from the Theridiidae (the latter swallowed the Hadrotarsidae instead). Traditions that still endure are the **.drassus* set in Gnaphosidae, and the **.nops* crowd in Oonopidae (although a fair number of the latter have broken ranks and fled to the Caponiidae). New beginnings of this sort among leptonetids and palpimanoids show that hope springs eternal. Nevertheless, I am personally relieved that the ranks of **.osa* in Lycosidae and **.pelma* in Theraphosidae have been decimated by synonomy. The lesson of history for such semantic allusions (and taxonomic hubris) is clear.

In sum, *Advances in Spider Taxonomy* is a splendid volume. I do not have to recommend that you buy it, because you already know that it is indispensable. Arachnologists and beyond owe Platnick fervent thanks, because few works are as critical to good biology as nomenclatorial catalogs. If taxonomy is the *sina qua non* of all biological science, it is because of works such as this.

Jonathan A. Coddington, Department of Entomology NHB 164, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560 USA.